DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: ROUND POND	Lake Area (ha): 4.45
Town: NOTTINGHAM	Maximum depth (m): 15.8
County: Rockingham	Mean depth (m): 3.7
River Basin: Coastal	Volume (m^3) : 138000
Latitude: 43°06'53" N	Relative depth: 7.3
Longitude: 71°10'37" W	Shore configuration: 2.62
Elevation (ft): 315	Areal water load (m/yr): 17.58
Shore length (m): 1800	Flushing rate (yr^{-1}) : 4.80
Watershed area (ha): 137.3	P retention coeff.: 0.49
<pre>% watershed ponded: 0.0</pre>	Lake type: natural

BIOLOGICAL:	14 January 1993	10 August 1992	
DOM. PHYTOPLANKTON (% TOTAL) #1	FILAM. BL-GR SPP. 75%	APHANIZOMENON 75%	
#2	SYNEDRA 25%	MICROCYSTIS 10%	
#3		COELOSPHAERIUM 10%	
PHYTOPLANKTON ABUNDANCE (cells/mL)		16330	
CHLOROPHYLL-A (µg/L)		63.68	
DOM. ZOOPLANKTON (% TOTAL) #1	NAUPLIUS LARVA 50%	KELLICOTTIA 63%	
#2	KELLICOTTIA 36%	NAUPLIUS LARVA 14%	
#3		CYCLOPOID COPEPODS 12%	
ROTIFERS/LITER	104	796	
MICROCRUSTACEA/LITER	134	370	
ZOOPLANKTON ABUNDANCE (#/L)	238	1166	
VASCULAR PLANT ABUNDANCE		Very abundant	
SECCHI DISK TRANSPARENCY (m)		0.8	
BOTTOM DISSOLVED OXYGEN (mg/L)	0.0	0.3	
BACTERIA (E. coli, #/100 ml) #1		10	
#2			
#3			

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 4.5 Hypolimnion volume (m^3) : 30000 Anoxic volume (m^3) : 50500

CHEMICAL:	Lake: ROUND POND Town: NOTTINGHAM				
	14 January 1993		10 August 1992		
DEPTH (m)	3.5		1.0	4.5	11.0
pH (units)	4.2		6.9	6.2	6.5
A.N.C. (Alkalinity)	-3.7		8.2	9.3	23.1
NITRATE NITROGEN	0.22		< 0.02	< 0.02	< 0.02
TOTAL KJELDAHL NITROGEN	0.16				
TOTAL PHOSPHORUS	0.011		0.042	0.039	0.247
CONDUCTIVITY (µmhos/cm)	126.5		34.6	39.3	58.8
APPARENT COLOR (cpu)	22		55	38	42
MAGNESIUM			1.08		
CALCIUM			2.9		
SODIUM			1.7		
POTASSIUM			0.31		
CHLORIDE	7		< 3	< 3	< 3
SULFATE	5		4	5	3
TN : TP	35				
CALCITE SATURATION INDEX			3.1		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1992

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
6	5	6	6	23	Eutro.

COMMENTS:

- 1. Round Pond is the most eutrophic stratified pond that has been classified to date. It received one trophic point less than the maximum possible. If the water clarity (Secchi disk) had been .5 meters rather than .8 meters, the pond would have received the maximum trophic points.
- 2. Interestingly, this most eutrophic pond is located within Pawtuckaway State Park and has no development around its shores.
- 3. Gas bubbles rose to the surface when the anchor landed in the bottom muck .
- 4. The wholewater phytoplankton was 90% blue-green algae, with $\underline{\text{Aphanizomenon}}$ (85%) the dominant genera.

FIELD DATA SHEET

LAKE: ROUND POND TOWN: NOTTINGHAM DATE: 08/10/92 WEATHER: OVERCAST AND RAIN

0.1 1.0 2.0 3.0 4.0 5.0 6.0	21.3 21.0 20.2 18.0 14.9 9.5 7.0	10.8 9.4 6.9 1.8 0.1 0.2	119 105 75 19	8
2.0 3.0 4.0 5.0 6.0	20.2 18.0 14.9 9.5	6.9 1.8 0.1	75 19	8
3.0 4.0 5.0 6.0 7.0	18.0 14.9 9.5	1.8	19	
4.0 5.0 6.0 7.0	14.9	0.1		8
5.0 6.0 7.0	9.5		1	
6.0 7.0		0.2		8
7.0	7.0		2	8
		0.2	2	8
	5.9	0.2	2	8
8.0	5.4	0.2	2	8
0.0	5.0	0.3	2	8
2.0	5.0	0.3	2	8
4.0	5.0	0.3	2	8
5.0	5.0	0.3	2	8
	4.0	4.0 5.0 5.0 5.0	4.0 5.0 0.3 5.0 5.0 0.3	4.0 5.0 0.3 2 5.0 5.0 0.3 2

SECCHI DISK (m): 0.8

COMMENTS: The entire metalimnion and

BOTTOM DEPTH (m): 15.4

hypolimnion were devoid of

TIME: 1100

dissolved oxygen.

*Dissolved oxygen values are in mg/L

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AQUATIC PLANT SURVEY

LAK	E: ROUND POND	TOWN: NOTTINGHAM	DATE: 08/10/92	
Кеу	PLANT	NAME	10000100	
Key	GENERIC	COMMON	ABUNDANCE	
N	Nymphaea	White water lily	Abundant	
P	Pontederia cordata	Pickerelweed	Common	
Т	Typha	Cattail	Scattered	
В	Brasenia schreberi	Water shield	Abundant	
D	Decodon verticillatus	Swamp loosestrife	Abundant	
Y	Nuphar	Yellow water lily	Abundant	
U	Utricularia	Bladderwort	Abundant	
С	Ceratophyllum demersum	Coontail	Sparse	
W	Potamogeton	Pondweed	Common	
		_		

OVERALL ABUNDANCE: Very abundant

GENERAL OBSERVATIONS:

 Southeastern half of pond (outlet end), was a shallow wetland with islands of <u>Decodon</u> and leatherleaf or laurel.